

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 09/675,627 ✓ Confirmation No.: 9578  
First Named Inventor: Michael Rumer Filing Date: September 29, 2000  
Group Art Unit: 2822 Examiner: Pamela E. Perkins  
Atty. Docket No.: M-8570 US  
Title: PVD Deposition Process For Enhanced Properties Of Metal Films  
Assignee: Novellus Systems, Inc.

San Francisco, California  
November 26, 2002

Box Non-Fee Amendment  
COMMISSIONER FOR PATENTS  
Washington, D. C. 20231

AMENDMENT

Sir:

This is in response to a non-final office action mailed on August 28, 2002, which set a shortened statutory period for response that expires on November 28, 2002. In view of the following amendment and remarks, reconsideration is respectfully requested.

In the Specification:

Please delete the paragraph at page 5, lines 6-14, and replace it with the replacement paragraph set forth below. A copy of the replacement paragraph in marked form appears in Appendix 1.

PVD is typically performed in a cluster tool, which includes at least a separate module for each layer to be deposited. For example, to produce a Ti/TiN/Al/TiN interconnect stack, titanium is deposited in a first module, titanium nitride in a second, aluminum in a third, and the titanium nitride overlayer in a fourth module. Commercially available PVD cluster tools include the Inova®, provided by Novellus Systems, Inc. (San Jose, CA) and the Endura®, provided by Applied Materials (Santa Clara, CA). Standard PVD processes and equipment are described, for example, in Chapter 10 of



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11-29-02

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Re: Application No.: 09/675,627  
First Inventor: Michael Rumer  
Group Art Unit: 2822  
Atty. Docket No.: M-8570 US  
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Examiner: Pamela E. Perkins

Sir:

Transmitted herewith are the following documents in the above-identified application:

- (1) Return Receipt Postcard;
- (2) This Transmittal Letter (in duplicate);
- (3) Amendment including Appendices 1, 2 & 3 (19 pgs.);
- (4) Submission of Formal Drawings (1 pg.); and
- (5) Formal Drawings (3 sheets).

☐ The fee has been calculated as shown below:

**CLAIMS AS AMENDED**

|  | Claims Remaining<br>After Amendment                           |       | Highest No.<br>Previously<br>Paid For |   | Present<br>Extra | Rate      | Additional Fee |
|--|---|-------|---------------------------------------|---|------------------|-----------|----------------|
| Total Claims   | 22  | Minus | 22                                    | = | 0                | x \$18.00 | \$ 0.00        |
| Independent Claims   | 4   | Minus | 4                                     | = | 0                | x \$84.00 | \$ 0.00        |
| <input type="checkbox"/> Fee of \$                               | for the first filing of one or more multiple dependent claims |       |                                       |   |                  |           | \$             |
| <input type="checkbox"/> Fee for Request for Extension of Time ( | month(s))   |       |                                       |   |                  |           | \$             |
| <input type="checkbox"/> Fee for                                 |   |       |                                       |   |                  |           | \$             |

**Total additional fee for this Amendment:**

- ☐ Please charge our Deposit Account No. 19-2386 in the amount of \$ 0.00
- ☒ Conditional Petition for Extension of Time: If an extension of time is required, the Commissioner is authorized to deduct the necessary fee from Deposit Account No. 19-2386.
- ☒ Also, charge any additional fees required and credit any overpayment to our Deposit Account No. 19-2386.

EXPRESS MAIL LABEL NO:

EV 259 161 652 US

Respectfully submitted,

K. Alison de Runtz  
Reg. No. 37,119

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